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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,595	11/02/2004	Michael Grass	260382US0XPCT	5262

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EXAMINER	
CHOI, LING SIU	

ART UNIT	PAPER NUMBER
1713	

NOTIFICATION DATE	DELIVERY MODE
08/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/511,595	Applicant(s) GRASS ET AL.	
	Examiner Ling-Siu Choi	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed May 18, 2007. Claims 2 and 7 were canceled and claims 14-22 have been added. Claims 1, 3-6, and 8-22 are now pending. In view of the Amendment, the claim rejection under 35 U.S.C. 102(b) as being anticipated by Hayes et al. (US 4,079,092) are withdrawn. The claim rejections under 35 U.S.C. 102(b) as being anticipated by Brunner et al. (US 6,284,917 B1) and Hahnfeld et al. (US 6,350,820 B1) are maintained.

Claim Analysis

2. Summary of claim 1:

A catalyst for [aromatic compounds \Rightarrow alicyclic compounds], comprising	
	at least one <u>metal of the eighth transition group</u> on or in a support material
	wherein the <u>support material</u> has
	an average pore diameter = 25-50 nm
	a specific surface area > 30 m ² /g
wherein over 90% of the total pore volume of the support material is comprised of meso- and micropores with a diameter of from 0.1 to 50 nm	

claim 3(1)	The support material comprises activated carbon, silicon carbide, aluminum oxide, silicon oxid, aluminosilicate, titanium dioxide, zirconium dioxide, magnesium oxide, zinc oxide, or mixtures thereof
claim 4(1)	further comprises at least one metal of the <u>first transition group</u>
claim 5(1)	further comprises at least one metal of the <u>seventh transition group</u>

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Summary of claim 6:

A process for the <u>catalytic hydrogenation</u> of an aromatic compound with one or more hydrogen-containing gases on a catalyst	
the catalyst:	at least one metal of the <u>eighth transition group</u> on or in a <u>support material</u>
	wherein the support material has an average pore diameter = 25-50 nm a specific surface area > 30 m ² /g,
	wherein over 90% of the total pore volume of the support material is comprised of meso- and micropores with a diameter of from 0.1 to 50 nm
the aromatic compound:	aromatic monocarboxylic acids or their alkyl esters or aromatic polycarboxylic acids or their anhydrides, half esters, or full esters

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3-6, and 8-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Brunner et al. (US 6,284,917 B1).

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Brunner et al. disclose a process to hydrogenate a benzenepolycarboxylic acid, comprising contacting the benzenepolycarboxylic acid with a hydrogen-containing gas in the presence of a catalyst, wherein **the catalyst** comprises at least one metal of transition group VIII (ruthenium, palladium and/or rhodium) and optionally at least one metal of transition group I or VII of the Periodic Table as active component(s) and a support which is calcined at from 200 to 600°C and has about 50 to about 95% of mesopores with a pore diameter of from about 2 to about 50 nm and a surface area of from about 50 to about 500 m²/g, more preferably from about 200 to about 350 m²/g, and in particular from about 250 to about 300 m²/g (**catalyst 2** - col. 5, lines 5-16 and 29-38; col. 6, lines 1-23). Brunner et al. further disclose that the support is activated carbon, silicon carbide, aluminum oxide, silicon dioxide, titanium dioxide, zirconium dioxide, magnesium oxide, zinc oxide or mixtures thereof (col. 6, lines 29-36). **It is noted that “about 50 to about 95% of mesopores with a pore diameter of from about 2 to about 50 nm” reads on “over 90% of the total pore volume of the support material is comprised of meso- and micropores with a diameter of from 0.1 to 50 nm” because the amount of micropores can be any value larger than zero if the amount of mesopores is about 95% and the total amount of mesopores and micropores will definitely meet the limitation.** Thus, the present claims are anticipated by the disclosure of Brunner et al.

5. Claims 1, 3, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hahnfeld et al. (US 6,350,820 B1).

Hahnfeld et al. disclose a process to hydrogenate the vinyl aromatic polymer block segments of the copolymer in the presence of a metal catalyst supported on an inorganic substrate, wherein the inorganic substrate is a silica, alumina or carbon and has at least 98 percent of the pore volume defined by pores having pore diameters greater than 300 angstroms and a surface area between 10 and 100 m²/g, preferably between 15 and 90 with most preferably between 50 and 85 m²/g and wherein the metal catalyst comprises metal capable of catalyzing hydrogenation of the polymer, which is nickel, cobalt, rhodium, ruthenium, palladium, platinum, other Group VIII metals or mixtures thereof (col. 5, lines 22-38; col. 6, lines 1-16). The recitation "at least 98 percent of the pore volume defined by pores having pore diameters greater than 300 angstroms" can be interpreted as that at least 98% of pore volume of the support material comprised of micropores with a diameter of from 30 nm (300 angstroms) to 50 nm. **If the amount of mesopores is about 98%, the amount of micropores can be any value larger than zero and the total amount of mesopores and micropores will meet the limitation.** Thus, the present claims are anticipated by the disclosure of Hahnfeld et al.

Response to the Applicants' Arguments

6. Applicants: "**Catalyst 2** has the support material with an average pore diameter of from 5 to 20 nm and a surface area of about 50 to 500 m²/g, wherein 50 to 95% of the pores have a diameter of 2-50 nm (see col. 5-6).....The catalysts of Brunner

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comprise at best 50-95% of mesopores with a diameter 2-50 nm, **but does not comprise micropores**. Therefore, even if the range of a pore diameter in Brunner and the claimed invention overlaps, **Brunner does not disclose a catalyst having over 90% of the total pore volume of the support materials comprising meso- and micropores with a diameter from 0.1 to 50 nm.**"

"The catalysts of Brunner comprise at best 50-95% of mesopores with a diameter 2-50 nm" do not necessarily lead to a conclusion that it "does not comprise micropores." According to the statistics, a trace amount of micropores always exists. Thus, **total pore volume of the support materials comprising meso- and micropores will be over 90%.**

Referring to US 4,079,092, Hayes et al. disclose a catalytic composite for producing a cycloparaffinic hydrocarbon, comprising contacting hydrogen and an aromatic hydrocarbon in a catalytic composite which comprises a porous carrier material containing about 0.01 to about 2 wt.% platinum or palladium, about 0.01 to about 2 wt.% rhodium, about 0.05 to about 5 wt.% cobalt, and about 0.1 to about 3.5 wt.% halogen uniformly dispersed throughout the porous carrier material (claim 1). Hayes et al. further disclose that the porous carrier material is a crystalline aluminosilicate and has a surface area of about 25 (100) to about 500 m²/g and a pore diameter of about **20 to about 300 Å** (col. 4, lines 36-39; col. 5, lines 5-11; claim 3). However, Hayes et al. do not teach or fairly suggest the claimed catalyst comprising a support having over 90% of the total pore volume of the support material comprised of meso- and micropores with a diameter of from 0.1 to 50 nm.

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Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114.



LING-SUI CHOI
PRIMARY EXAMINER

August 5, 2007